

WHAT IS CLAIMED IS:

1 1. An organic light emitting diode (OLED) display, comprising:

2 a back panel;

3 a front panel substantially parallel to the back panel;

4 an array of OLED pixels positioned between the front

5 panel and the back panel; and

6 a plurality of thermally conductive elements positioned

7 between the OLED pixels and the back panel and

8 distributed throughout the array of OLED pixels, the

9 thermally conductive elements provide a path of low

10 thermal resistance from the OLED pixels to the back

11 panel.

1 2. The display of claim 1, wherein each OLED pixel comprises a

2 plurality of OLED sub-pixel regions that emit different

3 colors of light.

1 3. The display of claim 1, wherein the thermally conductive

2 elements comprise solder joints.

1 4. The display of claim 3, wherein there is at least one

2 solder joint positioned between each OLED pixel and the

3 back panel.

1 5. The display of claim 4, wherein:

2 each OLED pixel has at least one cathode contact; and

3 a solder joint for each OLED pixel on the cathode contact

4 between the OLED pixel and the back panel.

1 6. The display of claim 5, wherein:

2 each OLED pixel has at least one anode contact; and

3 a solder joint for each OLED pixel on the anode contact
4 between the anode contact and the back panel.

1 7. The display of claim 6, wherein at least a portion of the
2 solder joints conducts electrical current to the OLED
3 pixels.

1 8. The display of claim 1, wherein the array of OLED pixels is
2 divided into a plurality of subsets of adjacent pixels.

1 9. The display of claim 8, wherein there is at least one
2 thermally conductive element positioned between each pixel
3 subset and the back panel.

1 10. The display of claim 9, wherein:
2 each pixel subset includes an OLED pixel having at
3 least one cathode contact; and
4 a thermally conductive element for each pixel subset
5 on the cathode contact between the pixel subset and
6 the back panel.

1 11. The display of claim 10, wherein:
2 each pixel subset includes an OLED pixel having at
3 least one anode contact; and
4 a thermally conductive element for each pixel subset
5 between the anode contact and the back panel.

1 12. The display of claim 11, wherein at least a portion of
2 the thermally conductive elements conducts electrical
3 current to the OLED pixels.

1 13. The display of claim 1, wherein the back panel comprises
2 a ceramic material.

1 14. The display of claim 1, further comprising an epoxy
2 material to affix the front panel to the back panel such
3 that the epoxy material occupies the space between the
4 thermally conductive elements.

1 15. The display of claim 1, further comprising a heat fin
2 coupled to the surface of the back panel opposite to the
3 front panel.

1 16. The display of claim 15, further comprising a cooling fan
2 to force airflow over the heat fin.

1 17. An OLED display, comprising:
2 a back panel;
3 a front panel substantially parallel to the back panel;
4 an array of OLED pixels positioned between the front
5 panel and the back panel, wherein the array of OLED
6 pixels is divided into a plurality of subsets; and
7 an array of solder joints distributed throughout the
8 array of OLED pixels such that at least one solder
9 joint is positioned between each pixel subset and the
10 back panel, wherein the solder joints dissipate heat
11 from the OLED pixels and at least a portion of the
12 solder joints conduct electrical current to the OLED
13 pixels.

1 18. The display of claim 17, wherein the back panel comprises
2 a ceramic material.

1 19. The display of claim 17, wherein each OLED pixel
2 comprises three OLED sub-pixel regions that emit different
3 colors of light.

1 20. The display of claim 17, wherein the portion of the
2 solder joints that conduct electrical current are
3 electrically connected to at least one back panel
4 interconnect.

1 21. The display of claim 17, further comprising a heat fin
2 coupled to the surface of the back panel opposite to the
3 front panel.

1 22. The display of claim 21, further comprising a cooling fan
2 to force airflow over the heat fin.

1 23. A method for manufacturing an OLED display, comprising:
2 providing an array of OLED pixels on a first surface of a
3 front panel;
4 forming cathode contacts over at least a portion of the
5 OLED pixels and distributed throughout the array of
6 OLED pixels;
7 forming solder joints on each cathode contact; and
8 mounting a back panel over the solder joints and
9 substantially parallel to the front panel so that the
10 solder joints provide a path of low thermal resistance
11 from the OLED pixels to the back panel.

1 24. The method of claim 23, wherein each cathode contact is
2 formed directly over a single OLED pixel.

1 25. The method of claim 23, wherein the solder joints are
2 formed such that at least a portion solder joints provide
3 electrical current to the OLED pixels.

1 26. The method of claim 25, wherein the portion solder joints
2 that provide electrical current to the OLED pixels are
3 electrically connected to at least one back panel
4 interconnect.

1 27. The method of claim 23, further comprising forming anode
2 contacts adjacent to at least a portion of the OLED pixels
3 such that the anode contacts are evenly distributed
4 throughout the array of OLED pixels.

1 28. The method of claim 25, further comprising forming solder
2 joints on each anode contact throughout the array of OLED
3 pixels.

1 29. The method of claim 23, further comprising filling the
2 space between the solder joints with an epoxy material to
3 affix the back panel to the front panel.